



## Short Communication

# Stress levels in medical students: A comparative study of first-and final-year MBBS students of government medical college

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## ABSTRACT

Medical students face higher stress than peers in other fields, with 50% showing depression and 29.6% at risk of suicide. Contributing factors include demanding curricula, time management issues, and communication barriers. This stress harms emotional, mental, and physical health and is linked to higher suicide risk. The Medical Student Stress Questionnaire assesses stress from mild to severe. The present study revealed that 46.8% of 1<sup>st</sup> year and 47.2% of final-year students had high academic-related stress, with final-year students reporting the highest stress. This underscores the need for support systems and interventions for medical students.

**Keywords:** Stress, Medical students, Medical students stress questionnaire, 1<sup>st</sup> years, Final years

## INTRODUCTION

Medical undergraduate training requires determination and discipline and is emotionally demanding. Studies show that medical students suffer from higher perceived stress than the student population in other academic fields.<sup>[1]</sup> A meta-analysis of 19 research articles on Indian medical students revealed a 50.0% pooled prevalence of depression (95% confidence interval: 31–70%);<sup>[2]</sup> 29.6% of medical students from a South Indian study revealed having suicidal risks at some point in their lives.<sup>[3]</sup> A study on comparison of the different levels of stress found that final-year students were more stressed than other years.<sup>[4]</sup>

Many factors contribute to the stressors that students face during their training. Most are related to extensive curricula, difficulty understanding concepts, time management issues, communication difficulties with severely ill patients, or due to language barriers. In the long term, stress negatively impacts students' emotional, mental, and physical well-being, and excessive stress is linked with suicide.<sup>[2,3,5]</sup> When assessing stress among medical students, it is important to consider the various sources of stress. Some ways to assess stress among medical students are self-report measures, clinical interviews, focus group discussions, observations, and physiological markers of stress. Many of the widely used instruments, such as the perceived stress scale and the depression and anxiety stress scale, are not specific to medical students.

A newer self-reported instrument designed to measure the sources and degree of stress experienced by medical students is called the Medical Student Stress Questionnaire (MSSQ).

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It comprises 40 items and takes approximately 7–10 min to complete. The items are scored on a Likert scale, with responses ranging from 0 (no stress) to 4 (very high stress). Higher scores on the questionnaire indicate a greater degree of stress. It evaluates stress levels in different domains. Stress score is categorized as mild (0–1), moderate (1.01–2), high (2.01–3), and severe (3.01–4) under the different domains. The questionnaire assesses a range of stressors, including academic workload, clinical responsibilities, relationships with peers and faculty, personal and family problems, and future career prospects. This information can be used to develop targeted interventions and support services to help medical students cope with the stressors that they are facing.<sup>[6]</sup>

Our study aimed to evaluate what are the differences in the types of stressors faced by 1<sup>st</sup> years and final year MBBS undergraduates.

## METHODS

We conducted the study in a government tertiary care teaching hospital in India through an online platform between June 2022 and October 2022. We sent pre-piloted Google Forms to medical students above the age of 18 through Email and WhatsApp. We ensured the confidentiality of the collected data and offered helpline services for those experiencing excessive stress. The study protocol was approved by the Institute Ethics Committee.

We contacted 190 students. A reminder was sent if there was no response to the first invitation. Eighty 1<sup>st</sup>-year students and 88 2<sup>nd</sup>-year students participated by completing Google Forms, which included sections on informed consent, sociodemographics, academic performance, and stressors assessed through the MSSQ. The Statistical Package for the Social Sciences, version 19, was used for statistical analysis. Associations between the year of study and stress were analyzed using the Mann–Whitney U-tests.

## RESULTS AND DISCUSSION

Our study involved 168 students; there was a male preponderance of 100 students (59.5%), out of which 51 were from the 1<sup>st</sup> year and 49 from the final year. There were 68 (40.48%) females, 39 females in the final year and 29 females in the 1<sup>st</sup> year.

The overall mean stress score for all students was 1.81 (0.69). An average score of above 1 under any domain is considered as having more than a mild level of stress requiring attention. About 46.8% of 1<sup>st</sup> years and 47.2% of final years reported high stress levels in the academic-related stress domain. Severe level of stress was reported by 12.6% of 1<sup>st</sup> years and 18% of final years in the Interpersonal Personal Relationship Stressor domain. Academic-related stressors caused a high level of stress in 46.8% of 1<sup>st</sup>-year and 47.2% of final-year students.

Table 1 shows that academic-related stressors, teaching and learning-related stressors, drive-related stressors, group and activity-related stressors, and overall stress were significantly higher in final year students than 1<sup>st</sup>-year students. Figure 1 illustrates trends in various stress domains between first-year and final-year students, showing that stress levels across all domains are higher in final-year students compared to first-year students. A previous study from India found that the MSSQ was a reliable and valid measure of stress among medical students in India. The study also found that academic stress was the most common source of stress among medical students.<sup>[7]</sup>

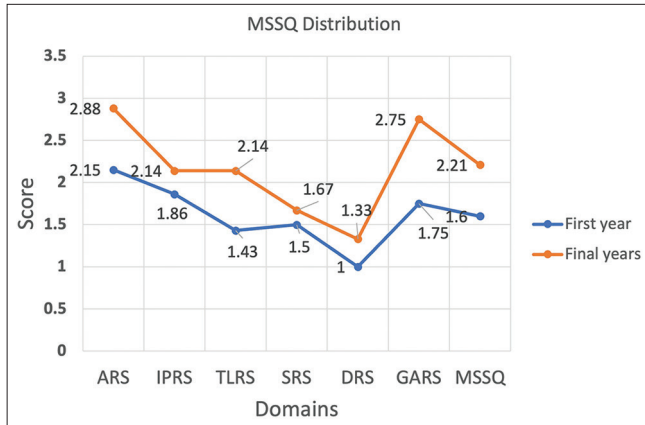
An interesting pattern was observed regarding the correlation between academic stress and the academic year. We noted that students in the final year reported higher stress than the students in 1<sup>st</sup> year. The results were similar to previous studies.<sup>[4,8]</sup> Notably, final-year students reported the highest stress levels. The higher stress experienced by final-year students stems from various sources. They may face heightened stress about their impending graduation<sup>[7]</sup> and pressure to meet academic requirements, prepare for examinations, and manage clinical responsibilities. Our study underscores the cumulative nature of stress in medical education, as students accumulate academic responsibilities, clinical experiences, and professional expectations over time. Effective support systems and interventions are needed to assist students in managing challenges and maintaining their well-being.

Figure 1 illustrates trends in various stress domains between first-year and final-year students, showing that stress levels across all domains are higher in final-year students compared to first-year students. Our study implies that MSSQ is a useful tool for assessing stress among medical students and that academic

**Table 1:** Distribution of MSSQ and Domains across all four years

	Median (Interquartile Range)		p-value
	First Year	Final year	
Academic related stress	2.15 (1.54, 2.67)	2.88 (2.46, 3.29)	<0.001
Intra and interpersonal related stress	1.86 (1.00, 2.57)	2.14 (1.29, 2.86)	0.085
Teacher and learning related stresses	1.43 (1.00, 2.00)	2.14 (1.57, 2.57)	<0.001
Social related stress	1.50 (1.33, 2.00)	1.67 (1.17, 2.1)	0.260
Drive related stress	1.00 (0.33, 1.67)	1.33 (1.00, 2.33)	0.037
Group and activity related stress	1.75 (1.00, 2.25)	2.75 (2.00, 3.00)	<0.001
Total MSSQ score	1.60 0.64	2.12 0.64	<0.001

MSSQ: Medical Student Stress Questionnaire



**Figure 1:** Trend of stress scores in 1<sup>st</sup> and final years. ARS: Academic-Related Stressors, IPRS: Intrapersonal and Interpersonal Related Stressors, TLRS: Teaching and Learning-Related Stressors, SRS: Social Related Stressors, DRS: Drive and Desire-Related Stressors, GARS: Group Activities Related Stressors, MSSQ: Medical Students Stress Questionnaire.

workload and clinical responsibilities are common sources of stress in this population. These findings highlight the importance of developing interventions and support services to help medical students cope with the stressors they face.

### Limitation

It is important to note that the MSSQ is not a diagnostic tool and should not be used to diagnose or treat any medical or psychological conditions. Rather, it is a screening tool that can provide valuable information about the level and sources of stress experienced by medical students. Using a combination of approaches to assess stress among medical students is important. This can help identify the sources and effects of stress on their lives and develop appropriate interventions to support their mental health and well-being.

### CONCLUSION

In conclusion, our study demonstrates that medical students, particularly those in their final year, experience significant stress across multiple domains, primarily from academic and interpersonal demands. As stress levels appear to escalate with academic progression, implementing effective, multi-faceted interventions is essential to help students manage stress, maintain well-being, and mitigate the potential negative effects of chronic stress on their mental and physical health.

### Ethical approval

The research/study approved by the Institutional Review Board at Jawaharlal Institute of Postgraduate Medical

Education and Research, number JIP/IEC/2022/023, dated 16th March, 2022.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

### Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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